

# MATHEMATICS – 9<sup>TH</sup> (IMPORTANT MCQS)

## CHAPTER: 01

### (Review Exercise 1)

01. The order of matrix  $\begin{bmatrix} 2 & 1 \end{bmatrix}$  is:  
 (a) 2-by-1 (b) 1-by-2 (c) 1-by-1 (d) 2-by-2
02.  $\begin{bmatrix} \sqrt{2} & 0 \\ 0 & \sqrt{2} \end{bmatrix}$  is called \_\_\_\_\_ matrix.  
 (a) Zero (b) Unit (c) Scalar (d) Singular
03. Which is order of a square matrix?  
 (a) 2-by-2 (b) 1-by-2 (c) 2-by-1 (d) 3-by-2
04. Order of transpose of  $\begin{bmatrix} 2 & 1 \\ 0 & 1 \\ 3 & 2 \end{bmatrix}$  is:  
 (a) 3-by-2 (b) 2-by-3 (c) 1-by-3 (d) 3-by-1
05. Ad joint of  $\begin{bmatrix} 1 & 2 \\ 0 & -1 \end{bmatrix}$  is:  
 (a)  $\begin{bmatrix} -1 & -2 \\ 0 & 1 \end{bmatrix}$  (b)  $\begin{bmatrix} 1 & -2 \\ 0 & -1 \end{bmatrix}$  (c)  $\begin{bmatrix} -1 & 2 \\ 0 & -1 \end{bmatrix}$  (d)  $\begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}$
06. Product of  $\begin{bmatrix} x & y \end{bmatrix} \begin{bmatrix} 2 \\ -1 \end{bmatrix}$  is:  
 (a)  $[2x+y]$  (b)  $[x-2y]$  (c)  $[2x-y]$  (d)  $[x+2y]$
07. If  $\begin{vmatrix} 2 & 6 \\ 3 & x \end{vmatrix} = 0$  then x is equal to:  
 (a) 9 (b) -6 (c) 6 (d) -9
08. If  $X + \begin{bmatrix} -1 & -2 \\ 0 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ , then X is equal to:  
 (a)  $\begin{bmatrix} 2 & 2 \\ 2 & 0 \end{bmatrix}$  (b)  $\begin{bmatrix} 0 & 2 \\ 2 & 2 \end{bmatrix}$  (c)  $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$  (d)  $\begin{bmatrix} 2 & 2 \\ 0 & 2 \end{bmatrix}$

## CHAPTER: 02

### (Review Exercise 2)

01.  $(27x^{-1})^{\frac{2}{3}} =$  \_\_\_\_\_  
 (a)  $\frac{\sqrt[3]{x^2}}{9}$  (b)  $\frac{\sqrt{x^3}}{9}$  (c)  $\frac{\sqrt[3]{x^2}}{8}$  (d)  $\frac{\sqrt{x^3}}{8}$
02. Write  $\sqrt[3]{x}$  in exponential form:  
 (a) x (b)  $x^7$  (c)  $x^{\frac{1}{7}}$  (d)  $x^{\frac{7}{2}}$
03. Write  $4^{\frac{2}{3}}$  with radical sign:  
 (a)  $\sqrt[3]{4^2}$  (b)  $\sqrt{4^3}$  (c)  $\sqrt[2]{4^3}$  (d)  $\sqrt{4^6}$
04. In  $\sqrt[3]{35}$  the radicand is:  
 (a) 3 (b)  $\frac{1}{3}$  (c) 35 (d) None of these



05.  $\left(\frac{25}{16}\right)^{\frac{1}{2}} =$  \_\_\_\_\_  
 (a)  $\frac{5}{4}$  (b)  $\frac{4}{5}$  (c)  $-\frac{5}{4}$  (d)  $-\frac{4}{5}$
06. The conjugate of  $5+4i$  is:  
 (a)  $-5+4i$  (b)  $-5-4i$  (c)  $5-4i$  (d)  $5+4i$
07. The value of  $i^9$  is:  
 (a) 1 (b) -1 (c)  $i$  (d)  $-i$
08. Every real number is:  
 (a) A positive integer (b) A rational number (c) A negative integer (d) A complex number
09. Real part of  $2ab(i+i^2)$  is:  
 (a)  $2ab$  (b)  $-2ab$  (c)  $2abi$  (d)  $-2abi$
10. Imaginary part of  $-i(3i+2)$  is:  
 (a) -2 (b) 2 (c) 3 (d) -3
11. Which of the following sets have the closure property w.r.t addition?  
 (a)  $\{0\}$  (b)  $\{0, -1\}$  (c)  $\{0, 1\}$  (d)  $\left\{1, \sqrt{2}, \frac{1}{2}\right\}$
12. Name the property of real numbers used in  $\left(-\frac{\sqrt{5}}{2}\right) \times 1 = -\frac{\sqrt{5}}{2}$ :  
 (a) Additive identity (b) Additive inverse (c) Multiplicative identity (d) Multiplicative inverse
13. If  $x, y, z \in \mathbb{R}, z < 0$ , then  $x < y \Rightarrow$  \_\_\_\_\_:  
 (a)  $xz < yz$  (b)  $xz > yz$  (c)  $xz = yz$  (d) None of these
14. If  $a, b \in \mathbb{R}$  then only one of  $a = b$  or  $a < b$  or  $a > b$  holds is called:  
 (a) Trichotomy property (b) Transitive property (c) Additive property (d) Multiplicative property
15. A non-terminating, non-recurring decimal represents:  
 (a) A natural number (b) A rational number (c) An irrational number (d) A prime number

## CHAPTER: 03

### (Review Exercise 3)

01. If  $a^x = n$ , then:  
 (a)  $a = \log_x n$  (b)  $x = \log_n a$  (c)  $x = \log_a n$  (d)  $a = \log_n x$
02. The relation  $y = \log_z x$  implies:  
 (a)  $x^y = z$  (b)  $z^y = x$  (c)  $x^z = y$  (d)  $y^z = x$
03. The logarithm of unity to any base is:  
 (a) 1 (b) 10 (c)  $e$  (d) 0
04. The logarithm of any number to itself as base is:  
 (a) 1 (b) 0 (c) -1 (d) 10
05.  $\log_e =$  \_\_\_\_\_ where  $e \approx 2.718$ :  
 (a) 0 (b) 0.4343 (c)  $\infty$  (d) 1
06. The value of  $\log\left(\frac{p}{q}\right)$  is:  
 (a)  $\log p - \log q$  (b)  $\frac{\log p}{\log q}$  (c)  $\log p + \log q$  (d)  $\log q - \log p$
07.  $\log p - \log q$  is same as:  
 (a)  $\log\left(\frac{q}{p}\right)$  (b)  $\log(p - q)$  (c)  $\frac{\log p}{\log q}$  (d)  $\log\left(\frac{p}{q}\right)$
08.  $\log(m^n)$  can be written as:  
 (a)  $(\log m)^n$  (b)  $m \log n$  (c)  $n \log m$  (d)  $\log(mn)$
09.  $\log_b a \times \log_c b$  can be written as:



- (a)  $\log_a c$  (b)  $\log_c a$  (c)  $\log_a b$  (d)  $\log_b c$

10.  $\log_y x$  will be equal to:

- (a)  $\frac{\log_z x}{\log_y z}$  (b)  $\frac{\log_x z}{\log_y z}$  (c)  $\frac{\log_z x}{\log_z y}$  (d)  $\frac{\log_z y}{\log_z x}$

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## CHAPTER: 04

(Review Exercise 4)

01.  $4x + 3y - 2$  is an algebraic:

- (a) Expression (b) Sentence (c) Equation (d) In equation

02. The degree of polynomial  $4x^4 + 2x^2y$  is:

- (a) 1 (b) 2 (c) 3 (d) 4

03.  $a^3 + b^3$  is equal to:

- (a)  $(a-b)(a^2 + ab + b^2)$  (b)  $(a+b)(a^2 - ab + b^2)$  (c)  $(a-b)(a^2 - ab + b^2)$  (d)  $(a-b)(a^2 + ab - b^2)$

04.  $(3 + \sqrt{2})(3 - \sqrt{2})$  is equal to:

- (a) 7 (b) -7 (c) -1 (d) 1

05. Conjugate of surd  $a + \sqrt{b}$  is:

- (a)  $-a + \sqrt{b}$  (b)  $a - \sqrt{b}$  (c)  $\sqrt{a} + \sqrt{b}$  (d)  $\sqrt{a} - \sqrt{b}$

06.  $\frac{1}{a-b} - \frac{1}{a+b}$  is equal to:

- (a)  $\frac{2a}{a^2 - b^2}$  (b)  $\frac{2b}{a^2 - b^2}$  (c)  $\frac{-2a}{a^2 - b^2}$  (d)  $\frac{-2b}{a^2 - b^2}$

07.  $\frac{a^2 - b^2}{a+b}$  is equal to:

- (a)  $(a-b)^2$  (b)  $(a+b)^2$  (c)  $a+b$  (d)  $a-b$

08.  $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$  is equal to:

- (a)  $a^2 + b^2$  (b)  $a^2 - b^2$  (c)  $a-b$  (d)  $a+b$

## CHAPTER: 05

(Review Exercise 5)

01. The factors of  $x^2 - 5x + 6$  :

- (a)  $x+1, x-6$  (b)  $x-2, x-3$  (c)  $x+6, x-1$  (d)  $x+2, x+3$

02. Factors of  $8x^3 + 27y^3$  are:

- (a)  $(2x+3y), (4x^2 + 9y^2)$  (b)  $(2x-3y), (4x^2 - 9y^2)$   
(c)  $(2x+3y), (4x^2 - 6xy + 9y^2)$  (d)  $(2x-3y), (4x^2 + 6xy + 9y^2)$

03. Factors of  $3x^2 - x - 2$  are:

- (a)  $(x+1), (3x-2)$  (b)  $(x+1), (3x+2)$  (c)  $(x-1), (3x-2)$  (d)  $(x-1), (3x+2)$

04. Factors of  $a^4 - 4b^4$  are:

- (a)  $(a-b), (a+b), (a^2 + 4b^2)$  (b)  $(a^2 - 2b^2), (a^2 + 2b^2)$



- (c)  $(a-b), (a+b), (a^2-4b^2)$  (d)  $(a-2b), (a^2+2b^2)$
05. What will be added to complete the square of  $9a^2-12ab$  ?  
 (a)  $-16b^2$  (b)  $16b^2$  (c)  $4b^2$  (d)  $-4b^2$
06. Find  $m$  so that  $x^2+4x+m$  is a complete square.  
 (a) 8 (b) -8 (c) 4 (d) 16
07. Factors of  $5x^2-17xy-12y^2$  are:  
 (a)  $(x+4y), (5x+3y)$  (b)  $(x-4y), (5x-3y)$  (c)  $(x-4y), (5x+3y)$  (d)  $(5x-4y), (x+3y)$
08. Factors of  $27x^3-\frac{1}{x^3}$  are:  
 (a)  $\left(3x-\frac{1}{x}\right), \left(9x^2+3+\frac{1}{x^2}\right)$  (b)  $\left(3x+\frac{1}{x}\right), \left(9x^2+3+\frac{1}{x^2}\right)$   
 (c)  $\left(3x-\frac{1}{x}\right), \left(9x^2-3+\frac{1}{x^2}\right)$  (d)  $\left(3x+\frac{1}{x}\right), \left(9x^2-3+\frac{1}{x^2}\right)$

## CHAPTER: 06

### (Review Exercise 6)

01. H.C.F of  $p^3q-pq^3$  and  $p^5q^2-p^2q^5$  is:  
 (a)  $pq(p^2-q^2)$  (b)  $pq(p-q)$  (c)  $p^2q^2(p-q)$  (d)  $pq(p^3-q^3)$
02. H.C.F of  $5x^2y^2$  and  $20x^3y^3$  is:  
 (a)  $5x^2y^2$  (b)  $20x^3y^3$  (c)  $100x^5y^5$  (d)  $5xy$
03. H.C.F of  $x-2$  and  $x^2+x-6$  is:  
 (a)  $x^2+x-6$  (b)  $x+3$  (c)  $x-2$  (d)  $x+2$
04. H.C.F of  $a^3+b^3$  and  $a^2-ab+b^2$  is:  
 (a)  $a+b$  (b)  $a^2-ab+b^2$  (c)  $(a-b)^2$  (d)  $a^2+b^2$
05. H.C.F of  $x^2-5x+6$  and  $x^2-x-6$  is:  
 (a)  $x-3$  (b)  $x+2$  (c)  $x^2-4$  (d)  $x-2$
06. H.C.F of  $a^2-b^2$  and  $a^3-b^3$  is:  
 (a)  $a-b$  (b)  $a+b$  (c)  $a^2+ab+b^2$  (d)  $a^2-ab+b^2$
07. H.C.F of  $x^2+3x+2, x^2+4x+3$  and  $x^2+5x+4$  is:  
 (a)  $x+1$  (b)  $(x+1)(x+2)$  (c)  $x+3$  (d)  $(x+4)(x+1)$
08. L.C.M of  $15x^2, 45xy$  and  $30xyz$  is:  
 (a)  $90xyz$  (b)  $90x^2yz$  (c)  $15xyz$  (d)  $15x^2yz$
09. L.C.M of  $a^2+b^2$  and  $a^4-b^4$  is:  
 (a)  $a^2+b^2$  (b)  $a^2-b^2$  (c)  $a^4-b^4$  (d)  $a-b$
10. The product of two algebraic expressions is equal to the \_\_\_\_\_ of their H.C.F.  
 (a) Sum (b) Difference (c) Product (d) Quotient
11. Simplify  $\frac{a}{9a^2-b^2} + \frac{1}{3a-b} = \dots\dots$   
 (a)  $\frac{4a}{9a^2-b^2}$  (b)  $\frac{4a-b}{9a^2-b^2}$  (c)  $\frac{4a+b}{9a^2-b^2}$  (d)  $\frac{b}{9a^2-b^2}$
12. Simplify  $\frac{a^2+5a-14}{a^2-3a-18} \times \frac{a+3}{a-2} = \dots\dots$   
 (a)  $\frac{a+7}{a-6}$  (b)  $\frac{a+7}{a-2}$  (c)  $\frac{a+3}{a-6}$  (d)  $\frac{a-2}{a+3}$



13. Simplify  $\frac{a^3 - b^3}{a^4 - b^4} + \frac{a^2 + ab + b^2}{a^2 + b^2} =$  \_\_\_\_\_  
 (a)  $\frac{1}{a+b}$  (b)  $\frac{1}{a-b}$  (c)  $\frac{a-b}{a^2+b^2}$  (d)  $\frac{a+b}{a^2+b^2}$
14. Simplify  $\left(\frac{2x+y}{x+y} - 1\right) + \left(1 - \frac{x}{x+y}\right) =$  \_\_\_\_\_  
 (a)  $\frac{x}{x+y}$  (b)  $\frac{y}{x+y}$  (c)  $\frac{y}{x}$  (d)  $\frac{x}{y}$
15. The square root of  $a^2 - 2a + 1$  is:  
 (a)  $\pm(a+1)$  (b)  $\pm(a-1)$  (c)  $a-1$  (d)  $a+1$
16. What would be added to complete the square of  $x^4 + 64$ ?  
 (a)  $8x^2$  (b)  $-8x^2$  (c)  $16x^2$  (d)  $4x^2$
17. The square root of  $x^4 + \frac{1}{x^4} + 2$  is:  
 (a)  $\pm\left(x + \frac{1}{x}\right)$  (b)  $\pm\left(x^2 + \frac{1}{x^2}\right)$  (c)  $\pm\left(x - \frac{1}{x}\right)$  (d)  $\pm\left(x^2 - \frac{1}{x^2}\right)$

## CHAPTER: 07

(Review Exercise 7)

01. Which of the following is the solution of the inequality  $3 - 4x \leq 11$ ?  
 (a) -8 (b) -2 (c)  $-\frac{14}{4}$  (d) None of these
02. A statement involving any of the symbols  $<$ ,  $>$ ,  $\leq$  or  $\geq$  is called:  
 (a) Equation (b) Identity (c) Inequality (d) Linear equation
03.  $x =$  \_\_\_\_\_ is a solution of the inequality  $-2 < x < \frac{3}{2}$ .  
 (a) -5 (b) 3 (c) 0 (d)  $\frac{3}{2}$
04. If  $x$  is no longer than 10, then:  
 (a)  $x \geq 8$  (b)  $x \leq 10$  (c)  $x < 10$  (d)  $x > 10$
05. If the capacity 'c' of an elevator is at most 1600 pounds, then:  
 (a)  $c < 1600$  (b)  $c \geq 1600$  (c)  $c \leq 1600$  (d)  $c > 1600$
06.  $x = 0$  is a solution of the inequality:  
 (a)  $x > 0$  (b)  $3x + 5 < 0$  (c)  $x + 2 < 0$  (d)  $x - 2 < 0$

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## CHAPTER: 08

(Review Exercise 8)

01. If  $(x-1, y+1) = (0, 0)$  then  $(x, y)$  is:  
 (a)  $(1, -1)$  (b)  $(-1, 1)$  (c)  $(1, 1)$  (d)  $(-1, -1)$
02. If  $(x, 0) = (0, y)$  then  $(x, y)$  is:



- (a) (0,1) (b) (1,0) **(c)** (0,0) (d) (1,1)
03. Point (2, -3) lies in quadrant:  
 (a) I (b) II (c) III **(d)** IV
04. Point (-3, -3) lies in quadrant:  
 (a) I (b) II **(c)** III (d) IV
05. If  $y = 2x + 1$ ,  $x = 2$  then  $y$  is:  
 (a) 2 (b) 3 (c) 4 **(d)** 5
06. Which ordered pair satisfies the equation  $y = 2x$ ?  
**(a)** 2 (b) 3 (c) 4 (d) 5

## CHAPTER: 09

(Review Exercise 9)

01. Distance between points (0,0) and (1,1) is:  
 (a) 0 (b) 1 (c) 2 **(d)**  $\sqrt{2}$
02. Distance between the points (1,0) and (0,1) is:  
 (a) 0 (b) 1 **(c)**  $\sqrt{2}$  (d) 2
03. Mid-point of the points (2,2) and (0,0) is:  
**(a)** (1,1) (b) (1,0) (c) (0,1) (d) (-1,-1)
04. Mid-point of the points (2,-2) and (-2,2) is:  
 (a) (2,2) (b) (-2,-2) **(c)** (0,0) (d) (1,1)
05. A triangle having all sides equal is called:  
 (a) Isosceles (b) Scalene **(c)** Equilateral (d) None of these
06. A triangle having all sides different is called:  
 (a) Isosceles **(b)** Scalene (c) Equilateral (d) None of these

## CHAPTER: 17

(Review Exercise 17)

01. A triangle having two sides congruent is called:  
 (a) Scalene (b) Right angled (c) Equilateral **(d)** Isosceles
02. A quadrilateral having each angle equal to  $90^\circ$  is called:  
 (a) Parallelogram **(b)** Rectangle (c) Trapezium (d) Rhombus
03. The right bisectors of the three sides of a triangle are:  
 (a) Congruent (b) Collinear **(c)** Concurrent (d) Parallel
04. The \_\_\_\_\_ altitudes of an isosceles triangle are congruent.  
**(a)** Two (b) Three (c) Four (d) None
05. A point equidistant from the end points of a line segment is on its:  
 (a) Bisector **(b)** Right bisector (c) Perpendicular (d) Median
06. \_\_\_\_\_ congruent triangles can be made by joining the mid-point of the sides of a triangle.  
 (a) Three **(b)** Four (c) Five (d) Two
07. The diagonals of a parallelogram \_\_\_\_\_ each other.  
**(a)** Bisect (b) Trisect (c) Bisect at right angle (d) None of these
08. The medians of a triangle cut each other in the ratio:  
 (a) 4:1 (b) 3:1 **(c)** 2:1 (d) 1:1
09. One angle on the base of an isosceles triangle is  $30^\circ$ . What is the measure of its vertical angle?  
 (a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  **(d)**  $120^\circ$
10. If the three altitude of a triangle are congruent, then the triangle is:  
**(a)** Equilateral (b) Right angled (c) Isosceles (d) Acute angled
11. If two medians of a triangle are congruent then the triangle will be:  
**(a)** Isosceles (b) Equilateral (c) Right angled (d) Acute angled